

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8/12/2009 has been entered.

Response to Amendment

This Office Action is responsive to the amendment filed on 8/12/2009. Claims 1-11 are pending. Claim 10 is withdrawn from further consideration as being drawn to a non-elected invention. Applicant's arguments have been considered. Claims 1-9 and 11 are non-finally rejected for reasons stated herein below.

Claim Objections

Claim 8 is being objected to because "steal" should be spelled "steel".

Correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 4 and 5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 4, it is unclear as to what materials constitute "fuel-reforming catalyst" and "electrode-forming catalyst".

In claim 5, it is unclear as to what materials constitute "an air electrode layer, a fuel electrode layer, and an intermediate layer."

Clarification is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chan (US 7157177) in view of Campbell (US 5863673).

Refer to fig. 2b and 6. Chan discloses an electrode comprising a porous metallic plate (5:60-6:8) having a top surface and a bottom surface;

a plurality of acicular pores (Applicant's through holes) extending through the porous metallic plate from the top and bottom surfaces (see Abstract)

During the particle deposition process, the porous support structure was situated perpendicular to the flow of reactant in the reaction chamber (10:63-64), and thus particle layers are formed on the upper and lower layer of the substrate.

Regarding claim 2, it is noted that when the porous support structure was situated perpendicular to the flow of reactant in the reaction chamber, it would cover the entire upper and lower surface.

Regarding claim 3, the particles are made of metal oxides (3:52-55).

Regarding claim 4, one or more atomic layers of an electrically conductive material may be deposited (10:43-44).

Regarding claim 6, a silicon film is formed by anodic etching (6:19). Nonetheless, the courts have held that the method of forming the product is not germane to the issue of patentability of the product itself. "[Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from the product of prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). See MPEP 2113.

Regarding claim 7, it is noted that the porous metallic plate is conductive and therefore, conducts electricity.

Chan discloses that the inner pore surfaces have a conformal electrically conductive layer and catalyst particles (see Abstract), but does not disclose particles

filled in an area defined by the acicular pores (Applicant's through-holes) (Applicant's claim 1). Campbell teaches a porous electrode substrate wherein through-holes 73 are filled with particulate electrically conductive material 74 (6:26-35 and fig. 5). It would have been obvious to one of ordinary skill in the art at the time the invention was made to fill the acicular pores of Chan for the benefit of enhancing the electrical conductivity of the electrode substrate.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chan (US 7157177) in view of Campbell (US 5863673) as applied to claim 1, in view of Ovshinsky (US 7226675).

Chan discloses that the substrate is made of nickel (5:63), but does not disclose the substrate being a material as claimed in claim 8. Ovshinsky teaches an electrode substrate made of copper (12:65). It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute the nickel substrate of Chan with the copper substrate of Ovshinsky since it has been held by the court that the selection of a known material based on its suitability for its intended use is *prima facie* obvious. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). See MPEP 2144.07.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chan (US 7157177) in view of Campbell (US 5863673) as applied to claim 1.

Chan discloses that the substrate thickness is between 75-2000 microns (3:45). In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists, see MPEP 2144.05.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chan (US 7157177) in view of Campbell (US 5863673) as applied to claim 1, in view of Hampden-Smith (US 7255954).

Chan discloses metal oxide particles (3:54), but does not disclose the compounds as claimed in claim 11. Hampden-Smith teaches electrocatalyst support particles comprising alumina, ceria, and titania (11:25). Hampden-Smith teaches that the support particles include dispersed phase of active species, and thus the compositions and ratios of the aggregate particle components can be varied independently and various combinations of the active materials can be produced (12:1-10). It would have been obvious to one of ordinary skill in the art at the time the invention was made to add the particles of Hampden-Smith to the substrate of Chan for the benefit of controlling the dispersion of the active materials onto the catalyst particles, as taught by Hampden-Smith.

Response to Arguments

Applicant's arguments filed 8/12/2009 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cynthia Lee whose telephone number is 571-272-8699. The examiner can normally be reached on Monday-Friday 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Cynthia Lee/
Examiner, Art Unit 1795